

CARBON TETRACHLORIDE IN FILARIASIS

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In view of the successful treatment of intestinal nematodes with carbon tetrachloride administered orally, it was decided to try the effect of the drug administered intravenously and intramuscularly on filariasis.

Prior to treating infected human beings, a series of experiments were carried out on healthy dogs. It was found that dogs could stand relatively large amounts of the pure drug administered intramuscularly or intraperitoneally, and that older animals tolerated the drug better than young animals; the minimal lethal dose was found to be 0.25 ccs. (*i.e.*, 0.39 gms.) per kilo body weight in animals weighing less than 1 kilo, whereas animals weighing over 4 kilos showed symptoms from which they recovered after a dose of 0.6 ccs. (*i.e.*, 0.94 gms.) per kilo body weight; these symptoms were drowsiness and refusal to take food for a few days after the injection.

Injected intravenously the drug caused rapid death due to embolism, but when mixed with two parts of ether by volume, embolism after intravenous injection was avoided.

An intramuscular injection of 0.5 ccs. of the drug into a healthy human being caused irritation at the site of injection, which was not severe and passed away in a few minutes; shortly after the injection the distinctive taste of the drug was felt in the mouth.

After these preliminary experiments the drug was tried on four adult patients each with a slight infection of *Filaria bancrofti*, as judged from the number of microfilaria in the circulating blood. In each case the number of microfilaria per c.c. was estimated by counting the number of microfilaria in 20 cmms. of blood at 9 p.m., before commencing treatment and at the end of treatment.

CASE 1. A native aged 35, weight 144 lbs.

Number of microfilariae in the blood at 9 p.m. before commencement of treatment—50 per c.c.

25.6.23. Intramuscular injection of 0.5 c.c. carbon tetrachloride.

20.7.23. Intravenous injection of 1 c.c. carbon tetrachloride mixed with 2 c.cs. ether.

25.7.23. Intramuscular injection of 1.5 c.c. carbon tetrachloride.

30.7.23. Intramuscular injection of 2 c.cs. carbon tetrachloride.

CASE 2. A native aged 32, weight 122 lbs.

Number of microfilariae in the blood at 9 p.m. before commencement of treatment—100 per c.c.

20.7.23. Intravenous injection of 1 c.c. carbon tetrachloride mixed with 2 c.cs. ether.

25.7.23. Intramuscular injection of 1.5 c.cs. carbon tetrachloride.

CASE 3. A Native aged 25, weight 143 lbs.

Number of microfilariae in the blood at 9 p.m. before commencement of treatment—350 per c.c.

11.7.23. Intramuscular injection of 1.1 c.cs. of carbon tetrachloride.

16.7.23. Intravenous injection of 1 c.c. carbon tetrachloride mixed with 2 c.cs. ether.

25.7.23. Intramuscular injection of 1.5 c.cs. carbon tetrachloride.

30.7.23. Intramuscular injection of 2 c.cs. carbon tetrachloride.

CASE 4. A native aged 24, weight 154 lbs.

Number of microfilariae in the blood at 9 p.m. before commencement of treatment—100 per c.c.

20.7.23. Intravenous injection of 1 c.c. carbon tetrachloride mixed with 2 c.cs. ether.

25.7.23. Intramuscular injection of 2 c.cs. carbon tetrachloride.

30.7.23. Intramuscular injection of 2 c.cs. carbon tetrachloride.

All the intramuscular injections were given into the buttock.

The patients were observed for one hour after each injection.

The intramuscular injection caused local pain, which passed away in from five to ten minutes. No marked analgesic effects were noticed after the local pain had disappeared. Injection of even 2 ccs. of the drug intramuscularly produced no anaesthesia.

Generally there was a slight diminution in the pulse rate up to four beats per minute following intramuscular injection.

All the cases noticed the taste of the drug shortly after injection.

Intravenous injection of the drug mixed with ether caused a severe attack of coughing, which commenced during the injection and lasted a few minutes; one case complained of a burning sensation in the mouth; all the cases were sleepy after the intravenous injection,

but whether the sleepiness was caused by the ether or the carbon tetrachloride it is impossible to say.

None of the cases showed albuminuria or other ill-effects either during or after the treatment, which was abandoned after the 30th July, 1923.

None of the cases showed any marked diminution of the microfilaria in the blood after the treatment, but it is impossible in the case of *Filaria bancrofti* to form an opinion of the effect of the drug on the adult worms.

The action of intravenous or intramuscular injections of carbon tetrachloride on adult filaria can only be tested in cases of *Loa loa*, but up to the present no suitable cases have been found in Freetown.

In view of the comparative safety with which the drug can be administered, both intravenously and intramuscularly, it is hoped that it will be tried on cases of *Loa loa* in localities where that disease is common.

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